MAGMA
MISSION TECHNOLOGY GROUP, INC.

PCI Expansion System
Users Manual

16 Slot PCIe to PCI-X Expansion

With Redundant Power and Remote Monitoring

Model: PE16RR-RAS

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Preface

Advisories

Five types of advisories are used throughout this manual to provide helpful information, or to alert you to the potential for hardware damage or personal injury. They are **Note**, **Important**, **Caution**, **Warning**, and **Danger**. The following is an example of each type of advisory.

NOTE

Used to amplify or explain a comment related to procedural steps or text.

IMPORTANT

Used to indicate an important piece of information or special "tip" to help you

CAUTION

Used to indicate and prevent the following procedure or step from causing damage to the equipment.

WARNING

Used to indicate and prevent the following step from causing injury.

DANGER or STOP

Used to indicate and prevent the following step from causing serious injury or significant data loss.

Disclaimer: We have attempted to identify most situations that may pose a danger, warning, or caution condition in this manual. However, Magma does not claim to have covered all situations that might require the use of a Caution, Warning, or Danger indicator.

Safety Instructions

Always use caution when servicing any electrical component. Before handling the MAGMA PCI Expansion chassis, read the following instructions and safety guidelines to prevent damage to the product and to ensure your own personal safety. Refer to the "Advisories" section for advisory conventions used in this manual, including the distinction between Dangers, Warnings, Cautions, and Notes.

- Always use caution when handling/operating the computer. Only qualified, experienced, authorized electronics personnel should access the interior of the computer. The power supplies produce high voltages and energy hazards, which can cause bodily harm.
- Use extreme caution when installing or removing components. Refer to the installation instructions in this manual for precautions and procedures. If you have any questions, please contact Magma Technical Support.

High voltages are present inside the expansion chassis when the unit's power cord is plugged into an electrical outlet. Disconnect the power cord from its source before removing the system cover.

Never modify or remove the radio frequency interference shielding from your workstation or expansion unit. To do so may cause your installation to produce emissions that could interfere with other electronic equipment in the area of your system.

When Working Inside a Computer

Before taking covers off a computer, perform the following steps:

1. Turn off the computer and any peripherals
2. Disconnect the computer and peripherals from their power sources to prevent electric shock or system board damage.
3. Disconnect any telephone or telecommunications lines from the computer.

In addition, take note of these safety guidelines when appropriate:

- To help avoid possible damage to systems boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

Do not attempt to service the system yourself except as explained in this manual. Follow installation instructions closely.

Protecting Against Electrostatic Discharge

Electrostatic Discharge (ESD) Warning

Electrostatic Discharge (ESD) is the enemy of semiconductor devices. You should always take precautions to eliminate any electrostatic charge from your body and clothing before touching any semiconductor device or card by using an electrostatic wrist strap and/or rubber mat.

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedure to reduce the risk of damage to components. Magma strongly encourages you to follow proper ESD procedure, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's anti-static packaging material until you are ready to install the component in a computer. Just before unwrapping the anti-static packaging, be sure you are at an ESD workstation or grounded.
- When transporting a sensitive component, first place it in an anti-static container or packaging.

- Handle all sensitive components at an ESD workstation. If possible, use anti-static floor pads and workbench pads.
- Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.

Chapter 1 Introduction

General Specifications

The MAGMA PE16RR-RAS is a rugged COTS (Commercial-Off-The-Shelf) 16 Slot PCIe to PCI-X Expansion System designed specifically for industrial telephony and military-grade configurations requiring remote monitoring capability. In addition, this expansion system was designed to meet the MIL-STD 461E standard. The expansion chassis is fully compliant with the PCI-X Local Bus Specification. This MAGMA expansion system consists of a PCIe Host Interface Card, a PCI expansion cable (a shielded, high-speed cable), a 16 gauge steel expansion chassis containing a 16 slot PCI-X backplane, the SNMP remote monitoring system and status panel, a locator LED, a redundant power supply, and high volume cooling fans.

Item	Description
▪ Backplane:	16 standard PCI-X slots 64-bits / 66MHz
▪ Enclosure:	Black, 4U Rack-Mount
▪ Dimensions:	19"W x 7"H x 20"D
▪ Weight:	35.7lbs or 16.2 kg
▪ Standard Cable Length:	1 meter
▪ PCI Local Bus Specification:	Revision 2.2
▪ PCI Bridge Architecture Spec:	Revision 1.1
▪ PCIe Uplink Bandwidth:	4 GByte/sec through Gen1 (IDT PCIe switch) 8 GByte/sec through Gen2 (IDT PCIe switch)
▪ PCI-X Interconnect Bandwidth:	533 MB/sec (Theoretical Max. of PCI-X 64/66)
▪ Cooling:	Four 77 CFM fans plus (2) fans (10.9 CFM) in each power supply module
▪ Power Supply:	850W, 100-240VAC, 47-63HZ, 1+1 redundant, hot swappable power supply
▪ MTBF:	100,000 hours
▪ Monitoring:	SNMP via Ethernet Audible Alarm Status panel
▪ Operating Environment:	Recommended operating temperature up to 50° C -55° to 125° C Storage Temperature 0% to 90% Relative Humidity, Non-condensing
▪ Operating Systems:	Windows 7/Vista/XP/Server 2003 Mac OS X version 10.4.x+ Linux Kernel 2.6x+ Solaris
▪ Warranty:	1 Year Return to Factory
▪ **Available Upgrade Options:**	**Rack-mount slide kit (18", 26" or 28")** MPN#: RSLIDES-XX PCIe Gen1 x8 Host card – 01-04978-01 PCIe Gen2 x8 Host card – 01-04978-03

Pre-Installation Information

Before using the MAGMA expansion chassis you should perform the following steps:

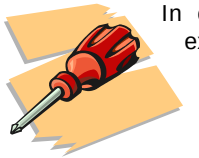
- Inventory the shipping carton contents for all of the required parts
- Gather all of the necessary tools required for installation
- Read this manual.

Parts List

The following parts are provided with the expansion system:

Item	Qty	Item
①	1	16 slot expansion rack-mount chassis
②	2	U.S. Standard 115V power cord, 10ft long, 18ga
	1	User's Manual

Tools Required for Installation



In order to complete the installation of the MAGMA expansion system you will need a Phillips-head screwdriver.

Chapter 2 Hardware Installation

The following steps will guide you in completing the hardware installation of your MAGMA PE16RR-RAS.

Electrostatic Discharge (ESD) Warning

All PCI-X cards are susceptible to electrostatic discharge. When moving PCI-X cards, it is best to carry the cards in anti-static packaging. If you need to set a PCI-X card down, be sure to place it inside or on top of an anti-static surface. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

High voltages are present inside the expansion chassis when the unit's power cord is plugged into an electrical outlet. Disconnect the power cord from its source before removing the enclosure cover. Turning the system power off at the power on/off switch does not remove power to components. High voltage is still present.

Before touching anything inside the enclosure, move to an ESD station and follow proper ESD procedure. Failure to do so may result in electrostatic discharge damaging the computer or its components. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

If your MAGMA expansion chassis was not purchased directly from Magma, you must check to ensure that it doesn't contain any pre-installed PCI-X cards.

Check the rear side of the chassis to see if any PCI-X cards are visible in the slots. If you see a PCI-X card, you should continue installation using instructions provided by your dealer. If no separate instructions are available, remove the cover by using instructions in *Chapter 4 Install 3rd. Party PCI-X Cards*. Then remove the card as normal. If no PCI-X card is visible, then continue with the cable installation.

Before you Begin

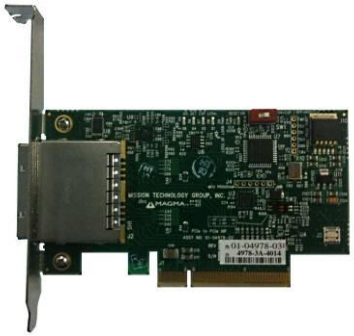
The system's power supply is auto-switching. These means that it will automatically switch to match whatever source power you are using. Since all products ship with a US Standard 115V power cord, you will need to use a power cord adapter for non-US Standard 115V power sources.

1 Install the PCIe Host Interface Card (OPTIONAL)

Install host interface card (HIF)

Begin the installation of your PCI Express (PCIe) host card by first powering down your computer. Use the procedures for shutting down your operating system and shutting off power to your system provided in your owner's manual or system documentation.

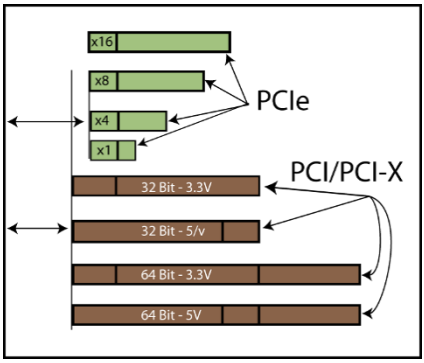
The PCIe host card is a "half-height," x8-capable PCIe card mounted to a "full-height" bracket as shown below:



For low profile case applications, you may need to change the mounting bracket to the low profile bracket that shipped with your system. This is done by removing the screws that hold the card to the bracket. Be sure you are using proper ESD procedures when completing this action.

Once the host computer is off and all power cords are disconnected from the AC outlet, remove the cover and insert the PCI Express host card into a vacant x8 (or x16) PCIe slot by gently pushing the card until it is firmly seated. Then secure the card to the slot with a mounting screw.

Notice that the PCI Express slots are located at a greater distance from the edge of the computer's mother-board than are the standard PCI slots as illustrated in the following figure.



STOP

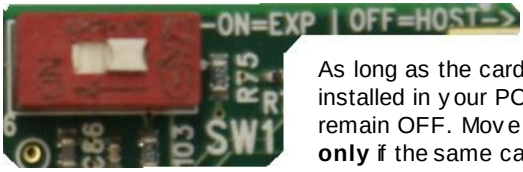
YOU MUST ONLY INSTALL THE PCIe HOST CARD INTO A **PCI EXPRESS SLOT**.

Only use cards WITH brackets. This will ensure that your PCIe host card can only be inserted into a PCIe slot. Although PCI Express cards without brackets may fit into conventional PCI slots, you run the risk of damaging the PCI Express host card if you insert it into a PCI slot. Please ensure that your host computer has PCI Express slots and install the host card **only** into a PCI Express slot.

For more information on using PCIe cards, please refer to your computer's user manual or system documentation.

Next check the DIP switch settings on the Magma Host Card as shown:

Host /Expansion Switch (Default→ Host):



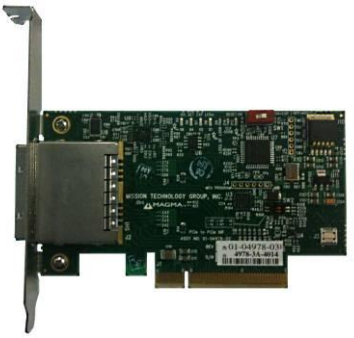
As long as the card is used as Host i.e. installed in your PC, the switch should remain OFF. Move it to the ON position **only** if the same card is used as an Expansion Interface (EIF) in the chassis (see the following section for more details).

Note: The expansion system will NOT function if SW1 is set to ON and the card is plugged into the host PC.

Install Expansion Interface Card, EIF, (If applicable)

As previously noted a Host Interface card (HIF), is the same exact card as the EIF only that its SW1 switch is set to "ON=EXP."

By default an EIF card should already be installed in the Magma expansion chassis.



Note: You may install more than one EIF in the chassis for failover applications. Please see instructions on how to install cards in your chassis in Chapter 4 and the I/O Switching section

In that case, two PCs with two HIFs connect to one expansion chassis and if one should fail, the other can take over the expansion PCIe I/Os.

2 Attach Power and Expansion Cables

The 1-meter iPass cable included with your Magma expansion chassis features a x8 connector on each side.

Carefully position the expansion chassis so that the supplied expansion cable will conveniently reach from the host computer to the connectors on the back of the chassis. Connect one end of the iPass cable to the expansion chassis' iPass connector. Then connect the other end of the iPass cable to the host card located in the host computer.

Connect one end of the cable to the chassis' iPass connector

Connect the other end to the host card inside the host PC.

Ensure that the system's redundant Power Supply Units are switched off.

Then connect the AC power cords to the inlets located in the rear of the unit:

Note

If at all possible, plug all power cords from the MAGMA expansion chassis and your host computer into a shared power strip, preferably one that has surge and noise suppression circuitry built into it.

All cables attached to the expansion chassis must be securely fastened. When you hear a "click," it is properly secured. If not securely connected, the connectors may cause intermittent or lost connections.

Recheck the Installation

Check your installation **before** powering up the Magma expansion chassis for the first time. Although the power supply has an over voltage protection device built into it, it may not "trip" in time to fully protect a device that has been improperly connected, or whose power cable has been damaged.

Applying Power Correctly

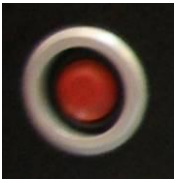
Starting Up:

You must apply power to the MAGMA expansion chassis BEFORE you power up your computer. This will allow the higher numbered PCI-X buses in the PCI-X bus hierarchy to be at a stable state when the host system issues its master power-on bus reset. Each of the redundant power supply units has its own power switch as well as an LED to indicate its power status:

Turn ON the power switch next to each respective redundant power supply unit in order to turn on the chassis.

A green LED will indicate a power-good status.

Pressing the RED Power Switch on the Front of the chassis to power it on. Secondly, power up the host computer.

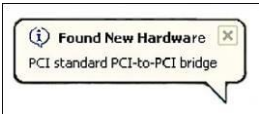


IMPORTANT

- These 1+1 redundant power supplies are hot swappable, which means that the system can fully operate on one power supply while the other is removed for repair/replacement.
- A power supply unit (PSU) should be switched off before removal and upon insertion of its replacement.
- After replacing a PSU, be sure to secure the new one in place with its snap-in mechanism for better grounding and noise immunity.

Windows XP and Windows 2000 Start Up

As your Windows XP/2000 computer starts up, you will see a small message box pop-up in the lower-right corner of the screen to alert you that Windows has found new hardware.



You are now ready to go. No drivers are needed. Now go to *Chapter 3 Verify Installation.*

MAC Start Up

MAC computers will boot up without any visible indicators that the Expansion System is connected. Go to *Chapter 3* Verify Installation.

Shutting Down:

When using the chassis in expansion mode please take the following precautions:

- DO NOT TURN OFF THE MAGMA EXPANSION CHASSIS UNTIL YOU HAVE SHUT DOWN YOUR COMPUTER COMPLETELY! It can cause a system lockup and loss of any unsaved data.
- When shutting your system down, it is recommended that you first shut down the computer correctly, and then power down the MAGMA expansion chassis to avoid 'computer lock-up' and potential data loss.
- Press the red button to power off the chassis.

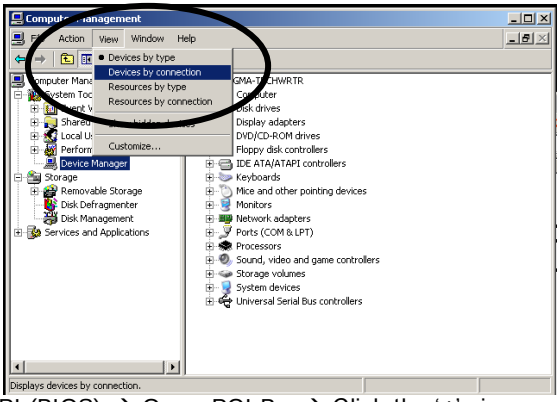
CHAPTER 3 Verify Installation

Important

The following chapter only applies when using the chassis is operated in expansion mode.

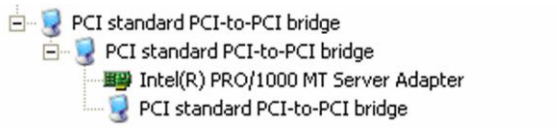
Windows 2000 and XP

To verify a successful installation on Windows XP or 2000, find the 'My Computer' icon → Right-click and select 'Manage' → Highlight 'Device Manager' → Click on the View Menu and select View Devices by Connection



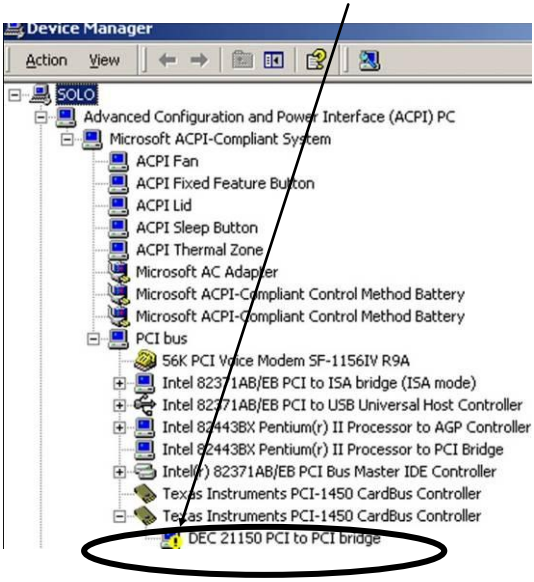
Open ACPI (BIOS) → Open PCI Bus→ Click the '+' sign several times until your reach the PCI Standard PCI to PCI Bridge.

When installed correctly, you will see three "PCI to PCI Bridges" below your system's PCI Controller.


PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 MT Server Adapter
PCI standard PCI-to-PCI bridge

If everything is OK, then the MAGMA PCIe expansion host card installation is complete. You can now proceed to *Chapter 4 Install 3rd. Party PCI-X Cards.*

If, however, the installation was unsuccessful, you may not see the PCI to PCI Bridge, or it will have a small yellow in front of it.

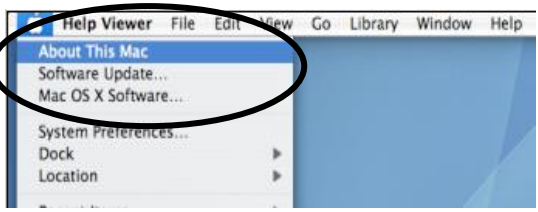

Device Manager
Action View
SOLO
Advanced Configuration and Power Interface (ACPI) PC
Microsoft ACPI-Compliant System
ACPI Fan
ACPI Fixed Feature Button
ACPI Lid
ACPI Sleep Button
ACPI Thermal Zone
Microsoft AC Adapter
Microsoft ACPI-Compliant Control Method Battery
Microsoft ACPI-Compliant Control Method Battery
PCI bus
56K PCI Voice Modem SF-1156IV R9A
Intel 82371AB/EB PCI to ISA bridge (ISA mode)
Intel 82371AB/EB PCI to USB Universal Host Controller
Intel 82443BX Pentium(r) II Processor to AGP Controller
Intel 82443BX Pentium(r) II Processor to PCI Bridge
Intel(r) 82371AB/EB PCI Bus Master IDE Controller
Texas Instruments PCI-1450 CardBus Controller
Texas Instruments PCI-1450 CardBus Controller
DEC 21150 PCI to PCI bridge

Proceed to *Chapter 7 Troubleshooting* for help with Windows installation problems.

MacOSX

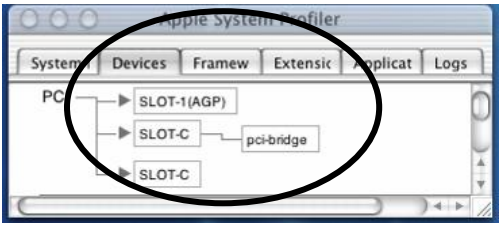
When using Mac OS X no additional software or drivers are needed. As long as you are using Mac OS X Version 10.2.2 or newer, the operating system should automatically recognize the MAGMA expansion chassis.

Select “About This Mac” under the Apple Icon



Then click the “More Info” button → click on the Devices tab→ you should see a **pci-bridge** device listed under PCI as shown below:

Any PCI Cards you install in the expansion chassis will appear behind the **pci-bridge** device.



Mac OS 10.2.x

Card	Type	Bus	Slot
pci-bridge	pci	PCI	SLOT-2
pci-bridge	pci	PCI	7x4
ATTO ExpressPCI UL3S	scsi-2	PCI	8x4
ATTO ExpressPCI UL3S	scsi-2	PCI	8x4
pci-bridge	pci	PCI	8xc

Mac OS 10.3.x & 10.4.x

If any of these devices are not displayed as shown above, you should shut down your system (computer first, then the expansion chassis) and reconnect the cables and the PCIe expansion host card to ensure that you have a solid connection. Then restart the MAGMA expansion chassis followed by the computer. Next, try to verify the installation again, as shown above. If you are still having problems, contact Magma Technical Support at (858) 530-2511.

Chapter 4 Install 3rd Party PCI-X Cards

This chapter provides information on how to install 3rd Party PCI-X cards into your MAGMA expansion chassis. More details on the installation of individual cards are provided by the card's manufacturer. This chapter is provided as a simple guide to help you install your PCI-X cards in the chassis.

For the purpose of installation, the MAGMA expansion chassis functions exactly as a standard desktop computer chassis. Always follow the manufacturer's instructions for installing their card on a desktop computer.

Important

We will provide reasonable technical support with 3rd. Party PCI-X cards. However, if you have verified a successful installation of the MAGMA expansion system (as defined in *Chapter 3*), but experience difficulty installing your 3rd. Party PCI-X cards, the PCI-X card manufacturer should be able to provide the best support.

1 Remove PCI-X Expansion Chassis Cover

Two captive thumb screws retain the cover on the expansion chassis. Loosen them to release the cover.

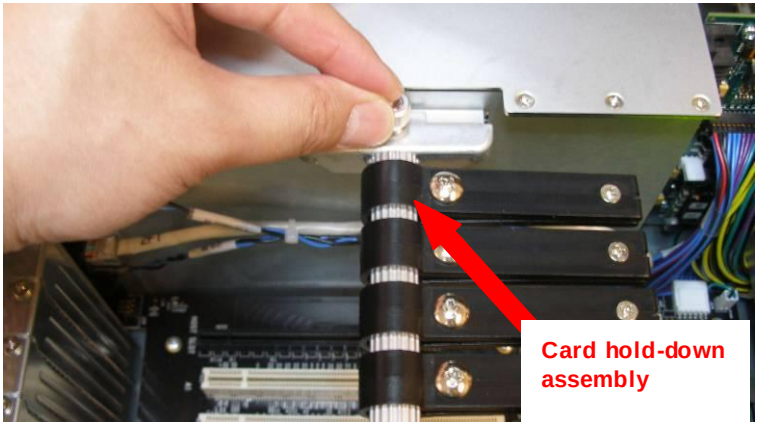
Slide the enclosure cover backwards, disengaging it from the guides at the front of the enclosure, by firmly grasping the cover lip and pulling the cover backward about a quarter of an inch and then lifting the cover off.

When replacing the enclosure cover, be sure that the front edge guides on the cover engage the inner lip of the enclosure.

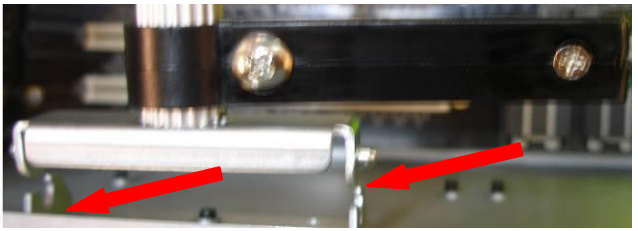
2 Remove the card hold-down assembly

The PE16RR-RAS features a PCI-X card hold-down assembly, whose purpose is to hold all the PCI-X cards securely to the backplane.

In order to gain access to plug and unplug PCI-X card, you must first remove this assembly. First, unlock the thumbscrew attaching the card hold-down bar to the power supply unit:



Next lift up the bar and it will detach from its anchoring point on the other side of the chassis.

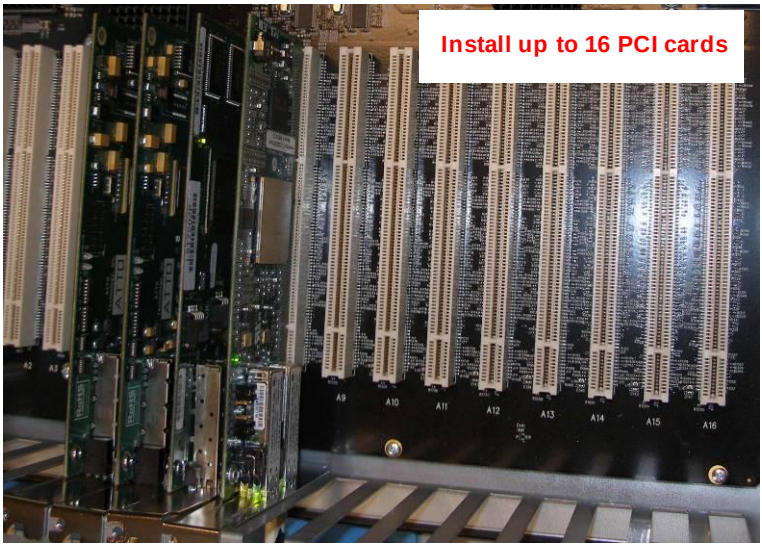


3 Install PCI-X Cards in PCI-X Expansion Chassis

When installing PCI-X cards, please ensure that the input current rating specified on the AC input label is not exceeded.

Generally, when installing 3rd Party PCI-X cards in the MAGMA expansion chassis, it should make no difference which PCI-X slot you place your cards in, *unless specified by the card manufacturer*.

Install each PCI-X card following the PCI-X card manufacturer's recommendations. Some PCI-X card manufacturers recommend that you install their software driver(s) prior to installing the hardware. If this is the case, you should install their driver before you connect and power up the expansion chassis.



To reduce potential problems with the installation of 3rd Party PCI-X cards, it is recommended that the cards and their drivers, if any, are installed and tested individually. This practice will reduce troubleshooting tasks in the event of a problem.

Make sure that all PCI-X cards are fully seated in their connectors. When correctly seated in its connector, you will notice a firm resistance when you pull up gently on the card. To keep the cards in place, secure them in the enclosure with their retaining screws (supplied with the MAGMA expansion chassis).

Finally, tighten the screw in the black plastic piece to lock it into place and prepare it to lock the PCI-X add-in card that will be installed in each slot.

Reinsert the bar into the chassis and tighten the captive screw.

The sheer number of PCI cards and device drivers available makes it impossible for Magma to fully test and certify all available PCI cards for use in the MAGMA expansion chassis. Our best advice to you in this regard is to insist on full PCI Specification compliance from your card and system vendors. Cards and systems should be at least PCI Specification Revision 2.0 compliant or better. Compliance in your system motherboard, PCI cards, and console firmware (or BIOS) is your best assurance that everything will install and operate smoothly.

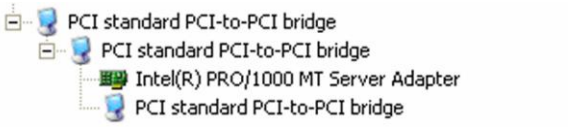
Not all PCI cards are as "well-behaved" as they should be. Sometimes simply moving a PCI card that is having a problem to a different slot, or reordering your cards in their slots, will alleviate "behavior" problems.

System Should Be Up and Running

Note: The following section only applies when using the chassis is operated in expansion mode.

Apply power to the MAGMA expansion chassis first, then power up the computer.

Use the procedures detailed in *Chapter 3* to confirm the card installation(s) in the Windows Device Manager or Apple System Profiler.


PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 MT Server Adapter
PCI standard PCI-to-PCI bridge

Windows Device Manager

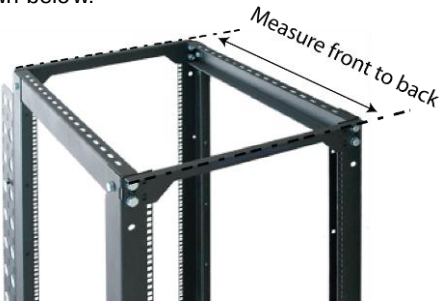
Card	Type	Bus	Slot
pci-bridge	pci	PCI	SLOT-2
pci-bridge	pci	PCI	7x4
ATTO ExpressPCI UL3S	scsi-2	PCI	8x4
ATTO ExpressPCI UL3S	scsi-2	PCI	8x4
pci-bridge	pci	PCI	8xc

MAC Apple System Profiler

5 Install Chassis in Rack

Locate a vacant 4U slot in your rack that is within the reach of the one-meter cable that came with your PE16RR-RAS Expansion System. Install the rails in the rack as shown below:

Measure the rack from front to back so you can confirm how long the rail must be to fit properly.



Next, assemble the Slide piece with the end bracket as shown and secure with 2 Panhead screws. Ensure the Phillips screw head is located on the “open” side of the Slide pieces as shown.

Tighten finger tight only to allow for minor adjustment during assembly.

Attach Rail to Chassis

Use at least three screws per side of the unit for mounting of the slides. Be sure you have measured accurately to ensure that everything fits in the rack correctly.

Attach Slide Rail to Rack

Attach to inside of rack with "fingers" pointing "out" and the end bracket to the rear. Secure each Slide Mount with 4 screws.

If your rack has holes too large for the screws, you can use the Bar Nut to secure your mounting by inserting the Panhead screw through the rack hole and screwing it into the Bar Nut on the reverse side of the rack post, as shown.

NOTE

Notice that the holes on the Bar Nut are spaced unevenly to accommodate different racks.

Secure the slide rail to the rack with 2 screws to both front and rear posts. After you have secured the slide rail fingers to the rack posts, tighten the 2 screws used to attach the slide rail to the end bracket.

Combine Chassis and Slide Rail

The chassis mounts into the rack from the front. Insert the chassis into the rack slide and press it forward until the chassis stops. When the chassis is completely inserted into the rack, secure all the mounting screws on each side.

Chapter 5 Remote Monitoring

SNMP 1.1 Features

Magma's PE16RR-RAS chassis supports the Simple Network Management Protocol 1.1 for remote monitoring and administration by offering the following features:

- Internal Temperature monitoring
- Clear Alarm button monitoring
- Swappable fan status (for fans 1,2,3 and 4 in the front)
- Power supply 1 status
- Power supply 2 status
- 10 Traps are defined to alert the SNMP server in case of overheat or failure in any of the subsystems mentioned above

SNMP Configuration

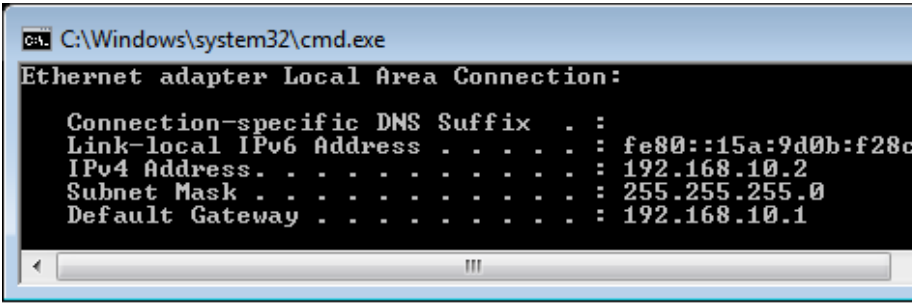
To ensure that you can successfully monitor your new system, you will need to connect it to a local or private hub using a standard RJ-45 Ethernet Cable. Connect one end of the cable to the RJ-45 port, located to the right of the power supply modules, and the other end to your local area network connector. In case you connect the chassis to a local computer/laptop be sure to use a Hub with a regular network cable or a crossover cable without a Hub.

The SNMP module in the PE16RR-RAS system can be configured for DHCP access (though this setting can be changed as described in the next section).

If you have access to your network's DHCP server make sure to look up and write down that IP address. In any other case you can use the **IPsetup.exe** utility to discover the IP address that was assigned to the chassis. It can be downloaded in the SNMP section of the Magma driver downloads at: http://www.magma.com/drivers.asp. Or you can use your internal network manager to discover the ip addresses on the network and find the Magma Chassis, PE16RR-RAS. The default ip address is 192.168.1.10 and you can directly connect another computer to this chassis if your network is configured properly.

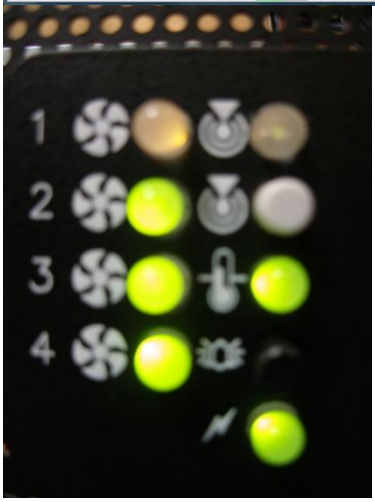
Here is an example:

a. Go into your host computer and change the ip address to be 192.168.1.5 and set the gateway to 192.168.10.1

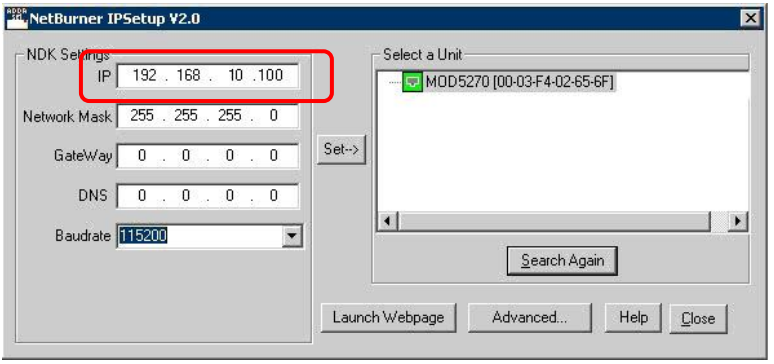

C:\Windows\system32\cmd.exe
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::15a:9d0b:f28c
IPv4 Address. . . . . : 192.168.10.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.10.1

2. Go back to the homepage of the SNMP unit using the 192.168.1.10 address, password: magma

Remove one fan at a time, by unscrewing them. After removing each one hit the clear alarm button to turn off the alarm signal and refresh the homepage to make sure the fans correspond to the proper position i.e. fan 1 of the homepage corresponds to fan 1 on the chassis. Also check the LED board to make sure that the corresponding LED turned orange. It should turn green once the fan is plugged back in automatically.



If you choose to use the freeware utility to verify the chassis on the network and find the IP address, download the IPSetup from our website: : http://www.magma.com/drivers.asp



In this case the IPsetup utility has found the PE16RR-RAS chassis at IP address 192.168.1.10.

Double click on the utility icon after your chassis has been connected to the network and powered on. It will then identify your chassis based on its MAC address and display the following information:

CAUTION

Caution

Aside from reading an IP address, the IPsetup.exe utility can be used to set an IP address other than the one assigned initially by the DHCP server—using the Set button. It is recommended, however, not to use the utility for this purpose since we will lose connectivity with the chassis until the machine running IPsetup.exe obtains an IP address in the same IP subnet. The next section will show a preferred way of accomplishing this via the browser interface. In case you need to back-trace any of these steps, you can always reset the chassis back to its factory settings.

Configure Network Settings

Open your browser and enter the discovered IP address in the URL bar and press **Enter**. The following authentication window will open up:

The factory settings will define the *User name* to be "**default**" and the *password* to be "**magma**". Enter these values in the appropriate field and select OK.

If the username and password have not been changed from the factory settings, the Generic Info page will appear, showing the current IP address, the Trap destination address and current system status concerning the fans and the redundant power supplies.

If the following page does not appear, double check the network connectivity to the chassis via the RJ-45 cable or see your network administrator for the correct user name and password.

The screenshot below shows a case where one of the power supplies is faulty or turned off:

MAGMA
MISSION TECHNOLOGY GROUP, INC.
Generic Info
IP Configuration
SNMP
Change Credentials
Generic Information
Chassis Status
Off
Device IP Address
192.168.10.100
Trap Destination IP Address
192.168.10.2
Power Supply One Status
Bad (Power Bad)
Power Supply One Fan Status
Good
Power Supply Two Status
Good
Power Supply Two Fan Status
Good
Fan One Status
Good
Fan Two Status
Good
Fan Three Status
Good
Fan Four Status
Good
MAGMA
MISSION TECHNOLOGY GROUP, INC.

To change the IP address, click on the IP Configuration link on the top bar and the following should appear:

Enter the new static IP address in the IP Address field. Enter the new subnet mask in the Network Mask field. Enter the IP addresses for the Gateway and the DNS Server in the appropriate fields. Finally, enter the network name for the PE16RR-RAS in the Device Name field for use when accessing the chassis when DHCP is enabled. By default the device name is Magma EB4-4DF.

If you wish to use **DHCP**, enter 0.0.0.0 in the IP Address field.

When you have finished configuring the network settings, you can either configure the SNMP settings as will be described in the next section, change the default user name and password, or save the current changes by clicking on the **Save Network configuration** button at the bottom of the screen.

Now you can connect your chassis to the network. To find the IP address assigned by your DHCP server, look in the DHCP server's list of attached devices for the name you assigned to your PE16RR-RAS chassis.

Configure SNMP Settings

If you are adding your PE16RR-RAS chassis to an existing SNMP network, or if you are planning to trap SNMP errors, you will need to configure the SNMP settings for use with your SNMP agent.

The default values for the SNMP settings are shown below:

To configure these values for your SNMP network, simply change the default values to match your requirements.

Change the **Read Community Name** and **Write Community Name** fields to match those required by your SNMP network. The default value is *public*.

Change the **Trap Destination IP Address** to the IP address of the computer getting the SNMP data. The default **Trap Destination IP address** in the above example was: *192.168.10.2*

Finally, save the newly entered settings:

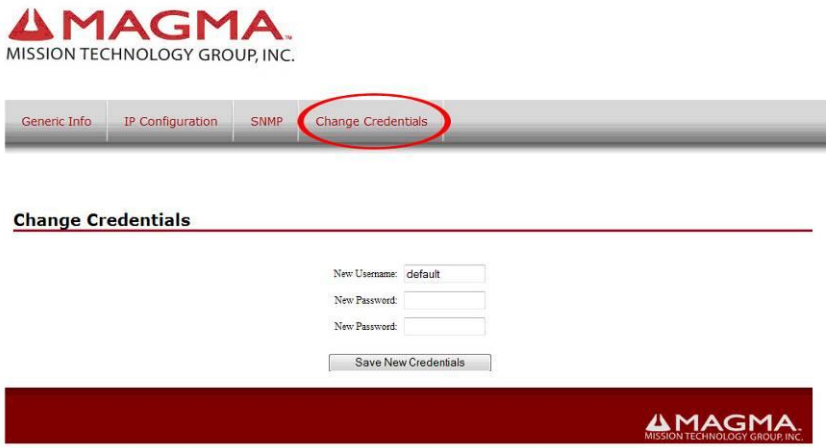
Change Credentials

This section allows you to change the default **user name** (*default*) and **password** (*magma*).

To change the **user name**, simply enter your new user name in the **user name** field. To change your password, enter your new password in the **password** field. Enter it again in the **password(again)** field. The password in both fields must match before they can be accepted.

IMPORTANT

The **user name** and **password** fields are case-sensitive.



When you have finished changing the default user name and password save the current changes by clicking on the **Save New Credentials** button at the bottom of the screen:

Reset to Default Values

In order to restore the PE16RR-RAS chassis to its factory default values you must first turn off the chassis. However, keep the power cords plugged in and the power supplies in the ON position. Then press and hold the Alarm Reset Button for 10 seconds during which the Power LED will blink. When all values have been restored, the LED will stop blinking and turn off.

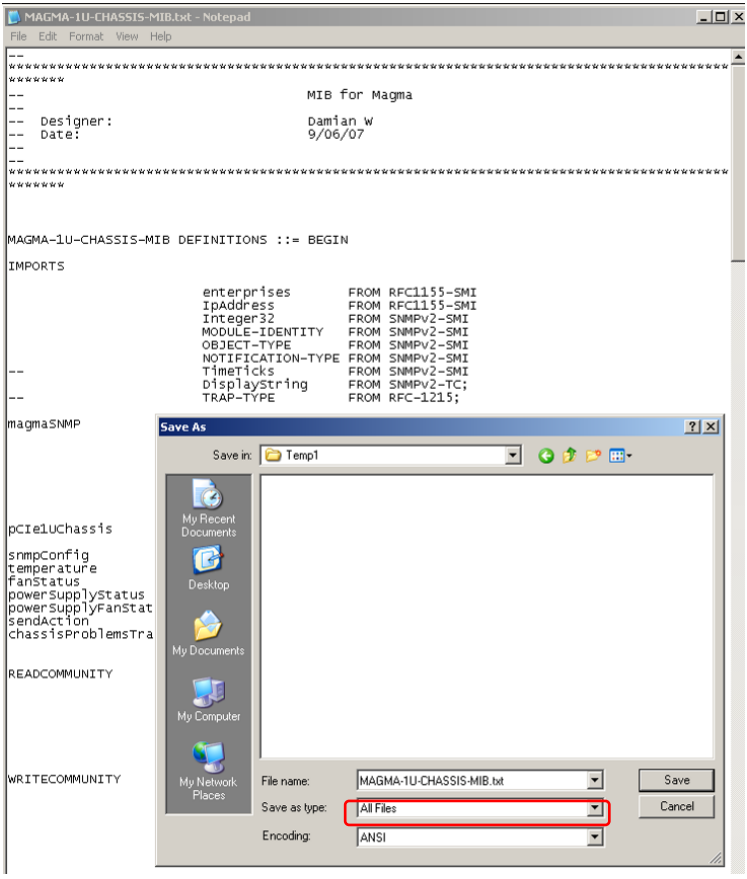
Configure your SNMP Agent

If you use an SNMP agent to help you monitor your network, you will find all necessary monitoring information in the MIB file.

Retrieving the MIB File

The MIB file from the tab SNMP of the WebServer. Click Link to MIB file.

After you click on the MIB file link, save the file as type “All Files” to your preferred location. You may then open the file (using Notepad, or equivalent text editor) and all the information needed to configure your SNMP agent will be displayed on the screen:

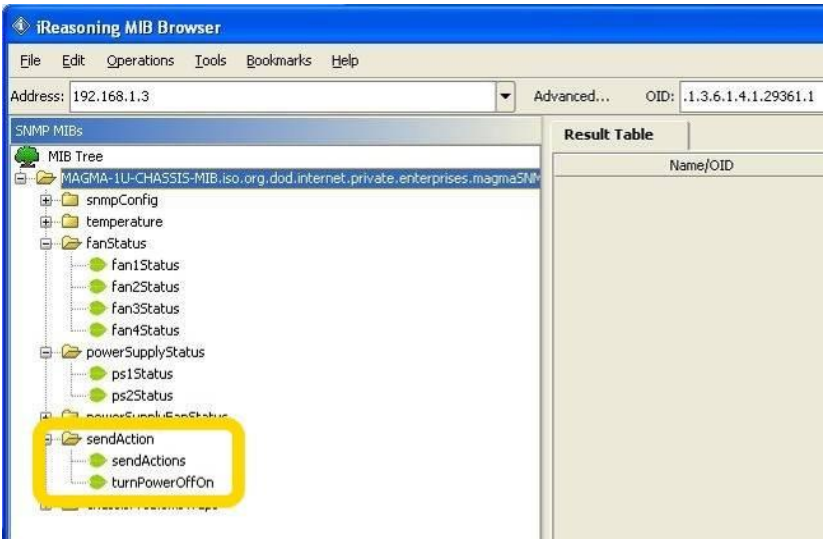


Once the MIB file is saved it can now be copied and loaded locally or to a remote server.

Accessing the various SNMP functions

Once the MIB file has been loaded to an SNMP server (via a front-end software typically called a MIB Browser) we can read in status information and set up specific functions otherwise not available via the Web interface.

If you would like to expirement with the SNMP 1.1 traps you can download a MIB Browser by iReasoning is shown below:



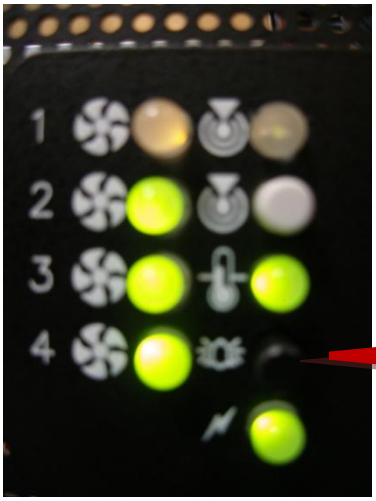
Under the MIB Tree, the Magma Chassis will have status information that can be read by expanding the respective folders. This information is also available in the Web interface mentioned previously. In addition, if we expand the *sendAction* folder (as shown above) we gain access to "writable" functions that essentially allow us to remote-control the chassis.

Enabling/disabling the chassis' Audible Alarm:

The Alarm is disabled by default.

In the above screen locate the Alarm entry in the *sendAction* folder where you can set its status as follows:

- Set *sendAction* to 8 will enable the audible alarm.
- Set *sendAction* to 4 will disable the audible alarm.
- Turn off the alarm by sendAction or using the front panel button to silence the alarm at any time.
-



The black button clears the alarm and turns it off.

Chapter 6 Proposed Test Procedure

Required Equipment:

Hardware:

- Magma PE16RR-RAS chassis
- Desktop PC with at least one Gen2 capable PCIe slot(s).
- ATX Power supply to power NE boards sets (if applicable).
- Router with DHCP boot.
- Oscilloscope, 100 MHz Bandwidth (or better)
- Digital Multi-Meter DMM

Software:

Microsoft Windows 7® or XP operating system (32 or 64 bits)

Test Procedure:

Special Testing Note(s):

- Should the test personnel have any questions as to how the test is to be set up or performed, please contact Magma Tech support for clarification BEFORE test commencement.
- Unless otherwise specified, the tests shall be performed with 01-05019-01 PCI-X Load Boards installed in all slots not used by other test cards.

Visual Inspection Test

	Pass/Fail
1. Backplane	
2. Structure of expansion chassis	
3. Front panel LEDs	
a. Power status LED	
b. Temperature status LED	
c. Equipment status LED	
d. Fans status LED	
4. Switches in Front Panel	
a. Red Power Switch	
b. Locator Switch	
c. Clear Audible alarm switch	
5. 16 PCI-X slot present	
6. 16 PCI-X slot marking is correct	
7. 1 PCI Express slot is correct	
8. Chassis initialization LEDs	
9. 4 fans	
10. Dual power supply with individual AC inlets	
11. Power supply wattage on label	
12. RJ-45 Ethernet port	

13. 2 Power cables	
14. Aux power port	

Power Supply Output Test (Minimum to Full Load)

This test verifies that +3.3VDC powers ```each of the four separate power "islands." The slots associated with each island are as follows:

Island 1: Slots 1 – 4

Island 2: Slots 5 – 8

Island 3: Slots 9 – 12

Island 4: Slots 13 – 16

This test starts with only ONE load board installed in slot 1.

All remaining PCI-X slots are EMPTY

1. Power up the chassis.
2. Measure the slot 1 voltage at the 15-pin load board connector from J2-1 to J2-10. The voltage shall be 3.05V to 3.55V.
3. Power down the chassis.
4. Install a load board in slot 5.
5. Power up the chassis.
6. Measure the slot 5 voltage at the 15-pin load board connector from J2-1 to J2-10. The voltage shall be 3.05V to 3.55V.
7. Power down the chassis.
8. Install a load board in slot 9.
9. Power up the chassis.
10. Measure the slot 9 voltage at the 15-pin load board connector from J2-1 to J2-10. The voltage shall be 3.05V to 3.55V.
11. Power down the chassis.
12. Install a load board in slot 13.
13. Power up the chassis.
14. Measure the slot 13 voltage at the 15-pin load board connector from J2-1 to J2-10. The voltage shall be 3.05V to 3.55V.
15. Power down the chassis.

    The next load board is installed in slot 2. Repeat the above steps with a second load board added to each power island, and verify that the voltage remains within the specified range. Continue until all sixteen slots have load cards installed, and the voltage has been verified on each of the sixteen load card J2 connectors.

Results	Pass/ Fail

SNMP System Test

NOTE

Some of the steps described below have already been discussed in Chapter 5, but in a different context. Therefore it is recommended to follow the steps exactly as they are presented again.

3. Configure your host machine IP address as follows:

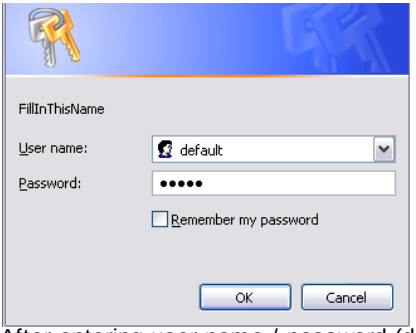
```
Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Test>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.1.8
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.1.1

Ethernet adapter Wireless Network Connection:

        Media State . . . . . . . . . . . : Media disconnected

C:\Documents and Settings\Test>
```

4. Plug in a crossover Ethernet cable into the 4U unit and the other end into the host machine.

You could use a hub instead. A router, however, is not recommended unless configured for appropriate gateway addresses.

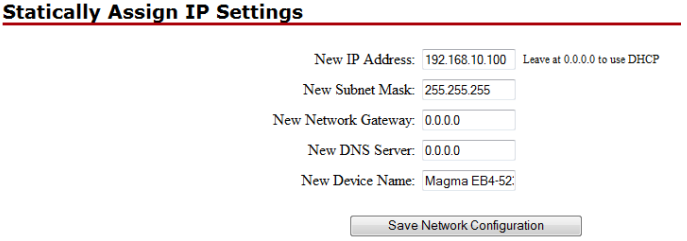
5. Power up the chassis.
6. Open your web browser and enter the IP address 192.168.1.10 in the address bar.

7. A prompt will come up and ask for user name and password. Enter: (default / magma) respectively:

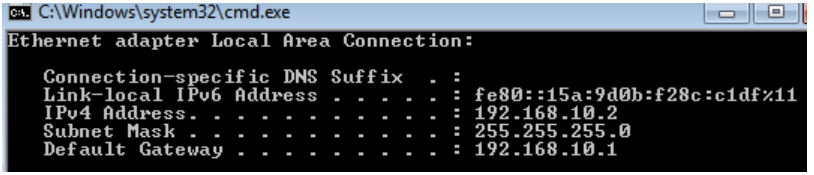


8. After entering user name / password (default / magma), SNMP home page should appear:

9. Click on the "IP configuration" tab/hyperlink.
   a. Change the IP address of the chassis to be 192.168.10.100 and set the gateway to 192.168.10.1
   b. Click Save Settings

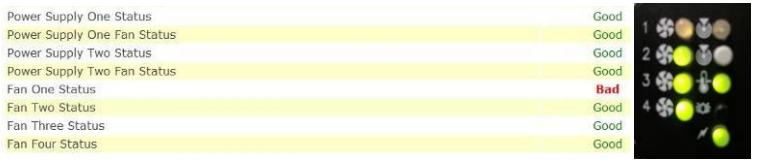

Statically Assign IP Settings
New IP Address: 192.168.10.100
Leave at 0.0.0.0 to use DHCP
New Subnet Mask: 255.255.255
New Network Gateway: 0.0.0.0
New DNS Server: 0.0.0.0
New Device Name: Magma EB4-52
Save Network Configuration

c. Now go into your host computer and change the IP address to be 192.168.10.5 and set the gateway to 192.168.10.1


C:\Windows\system32\cmd.exe
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::15a:9d0b:f28c:c1df%11
IPv4 Address. . . . . : 192.168.10.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.10.1

10. Go back to the homepage of the SNMP unit using the 192.168.10.100 address, password: magma

11. Remove one fan at a time (as shown in the Fan Replacement section). After removing each one hit the clear alarm button to turn off the alarm signal and refresh the homepage to make sure the fans correspond to the proper position i.e. fan 1 of the homepage corresponds to fan 1 on the chassis. Also check the LED board to make sure that the corresponding LED turned orange. It should turn green once the fan is plugged back in automatically.



12. Repeat step 9 for fans 2, 3, 4 and power supply 1 and 2 which have an off button on the rear left side of the chassis.
Power Supply 1 is the one located on top while Power Supply 2 is on the bottom.

13. Below is an example of Power Supply 1 failure as shown in the SNMP web interface, on the supply itself and in the front panel:

Power Supply One Status	Bad (Power Bad)
Power Supply One Fan Status	Good
Power Supply Two Status	Good
Power Supply Two Fan Status	Good
Fan One Status	Good
Fan Two Status	Good
Fan Three Status	Good
Fan Four Status	Good

Results	Pass/ Fail

Chapter 7 Chassis Maintenance

Like all computer systems, you will need to perform some routine maintenance tasks. Some of these include making sure that the air vents in the chassis are clear of obstructions and that the cooling air from the fans flows freely. You will also need to check the foam filter behind the front panel to ensure it is clean, thus allowing for unrestricted air flow to the fans. You should always keep an eye on all cables to make sure they are not damaged and are securely connected. Occasionally, you should remove the chassis cover and check for loose cards, and remove any dust build-up.

Always remember to power down your computer and the expansion system BEFORE you attempt to perform any maintenance tasks.

General Chassis Cleaning

The environment where your Magma chassis is operating should be the determining factor as to how often you should perform a general cleanup of the chassis. To perform a routine general cleaning of your chassis, you will need the following:

1. Can of compressed air (proper distance, 6 inches)
2. Cotton Swabs
3. Isopropyl (alcohol)
4. Anti static wipes
5. Warm water (for filter)
6. Dish soap (for filter)

Do not use a vacuum because vacuums create ESD.

First, remove the four cover screws and the top chassis cover:

Next, use a can of compressed air from your local computer store to blow out any dust that may have accumulated in the chassis fans.

Two of these components are field-replaceable: the cooling fans and the hot-swappable redundant power supply modules.

Fan replacement

The PE16RR-RAS chassis was designed to allow “hot-swappable” fan replacement while the chassis is powered on for maximal uptime.

First you will need to remove the chassis’ lid as shown in the beginning of Chapter 4. Then locate the fan that has failed, unlock its thumbscrew, lift up its metal tab and pull it out.

Insert the new fan in and secure it in place. Verify the new fan is spinning and restore the chassis lid.

NOTE

The Magma part number for a replacement fan is: 26-00031-00

All replacement fans ship with a set of 4 numbered stickers, so you can attach the appropriate number to the newly inserted fan

"Hot-Swappable" Power Supply

In spite of regular performance of routine maintenance tasks, some computer systems can experience hardware failures. Fortunately, your investment in a Magma Expansion system with a redundant power supply provides you with the ability to easily replace a power module in the event of a failure.

The redundant power supply includes two hot-swappable modules that share the power load requirements during normal operations. Should one module fail for any reason, the power load will be shifted to the other module and sound an audible alarm.

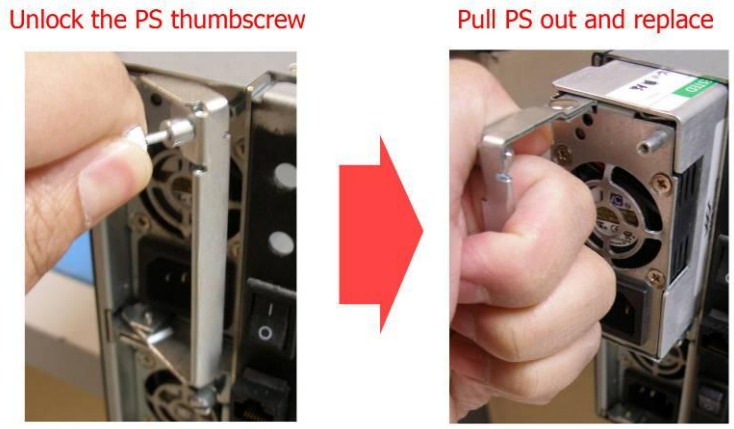
If a power supply fails, an alarm will sound to alert you of the problem. There are two types of audible alerts:

- Two short beeps – Occurs when one of the power supply modules has failed.
- A continuous beep – Occurs in the event of multiple, successive power surges during a short interval.

In order to turn off the audible alert press the black button on the status panel in the front of the chassis

Replacing a faulty power supply

A faulty power supply can be replaced by first unlocking the thumbscrew holding it in place. This thumbscrew also secures its handle, as can be seen below:



Once the handle has been extended, simply grab the power supply unit out of its housing and replace it with a new one. Ensure it is pushed all the way into the housing, return the handle to its original positing and lock the thumbscrew. Now you may turn on the power to the module using the power switch located to the right of the module. The power load will again be shared between the two power supply modules.

In order to ensure the safety and efficiency of your expansion system, it is recommended that you keep a spare power supply module on hand – just in case. Protect yourself, keep a spare. Order your spare power supply module from Magma – PN 40-00031-00.

Cleaning the Air Filter

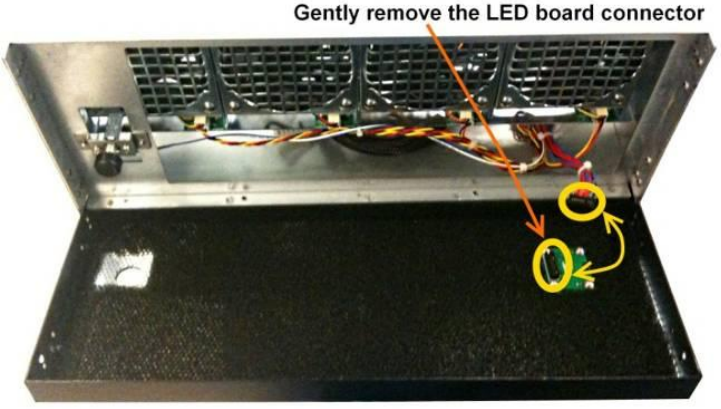
The chassis is equipped with an air filter that is easy to remove and clean. To keep your chassis running at its coolest, you should clean this filter regularly. How often the filter requires cleaning depends on environmental conditions where your Magma Expansion chassis is located. To clean this filter, follow these simple steps.

First, power down the chassis and disconnect the AC power cords from the power supplies. Using a Phillips screwdriver, remove the panel screws on bottom of the unit as shown:

NOTE

Note the different types of screws and their location as you remove them.

Next, open the faceplate slowly and disconnect the wire marked bellow:



Then remove the foam filter, located behind the faceplate, and clean it with a solution of warm water and mild dish soap.

Finally, replace the filter, reconnect the LED panel. Secure faceplate with Phillips screws. Tighten screws until snug and turn on power to the chassis.

NOTE

If you find it difficult to gain access to the foam filter, by removing only the bottom panel screws, you may also remove the chassis' side handles (each held by 4 screws) so that the front panel will be completely accessible.

In order to ensure the safety and efficiency of your expansion system, it is recommended that you keep a spare power supply module on hand – just in case. Protect yourself, keep a spare. Order your spare power supply module from Magma.

If your chassis is extremely dirty and you would like professional help with getting it clean, you can contact Magma Support for instructions and costs on shipping the chassis back for cleaning.

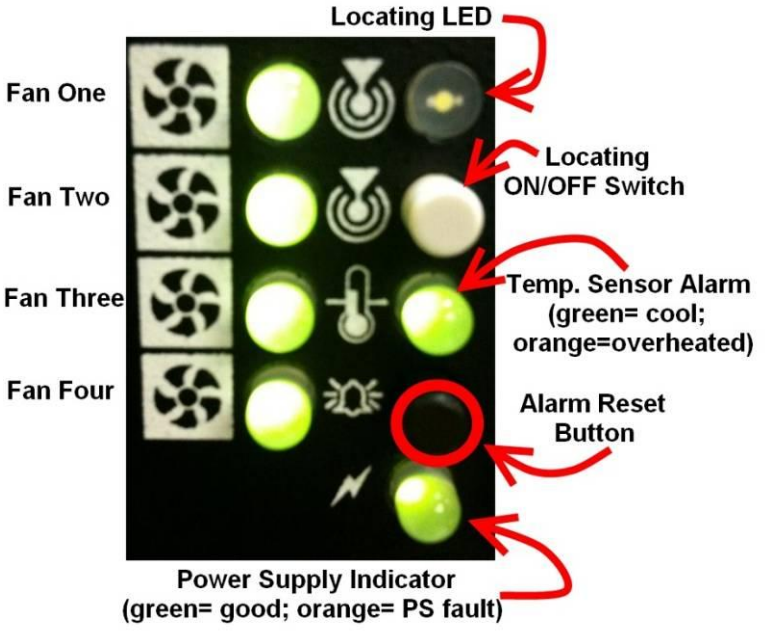
Chapter 8 Troubleshooting

Before discussing a troubleshooting methodology for locating the problem we will first introduce several indicators and configuration switches that provide general and specific information for this process.

Status Indicators and configuration switches

Under normal operating conditions the status indicators are for internal Magma troubleshooting while the configuration switches/jumpers should remain in their default state preset by Magma for best compatibility. However, should a problem occur with the chassis (or a special mode of operation be solicited by the client) we included below explanations as to what all these items are and how they should be treated:

Status Panel indicators:

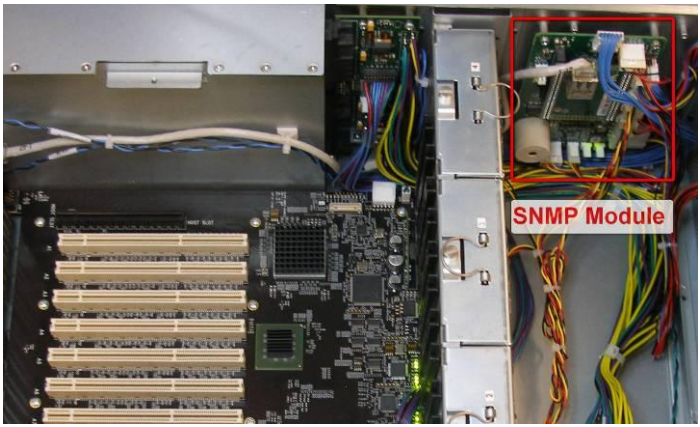


All LED's should be green at all times. An orange LED means a fault of the corresponding item listed in the picture above.

SNMP Power-On Source Jumper:

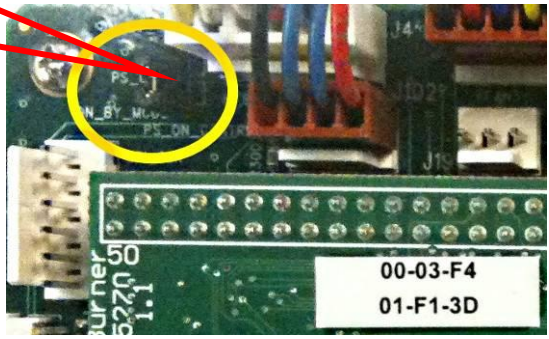
The SNMP module inside the PE16RR-RAS chassis features a power-on source jumper to select between local power-on (via the master on/off switch) and remote turn-on (via the SNMP software/front end).

Dismount the chassis from the rack (if applicable) and carefully remove the screws holding the chassis cover in place. In order to gain access to this module (and respective jumper), the top cover of the chassis needs to be removed as shown in Chapter 4.
The SNMP module will be located on the top right hand side of the unit:



Now locate the J6 jumper as shown below:

- For local power-on set the jumper between **PS_ON and ON_BY_SW** (Default)
- For Remote power-on set the jumper between **PS_ON and ON_BY_MCU**

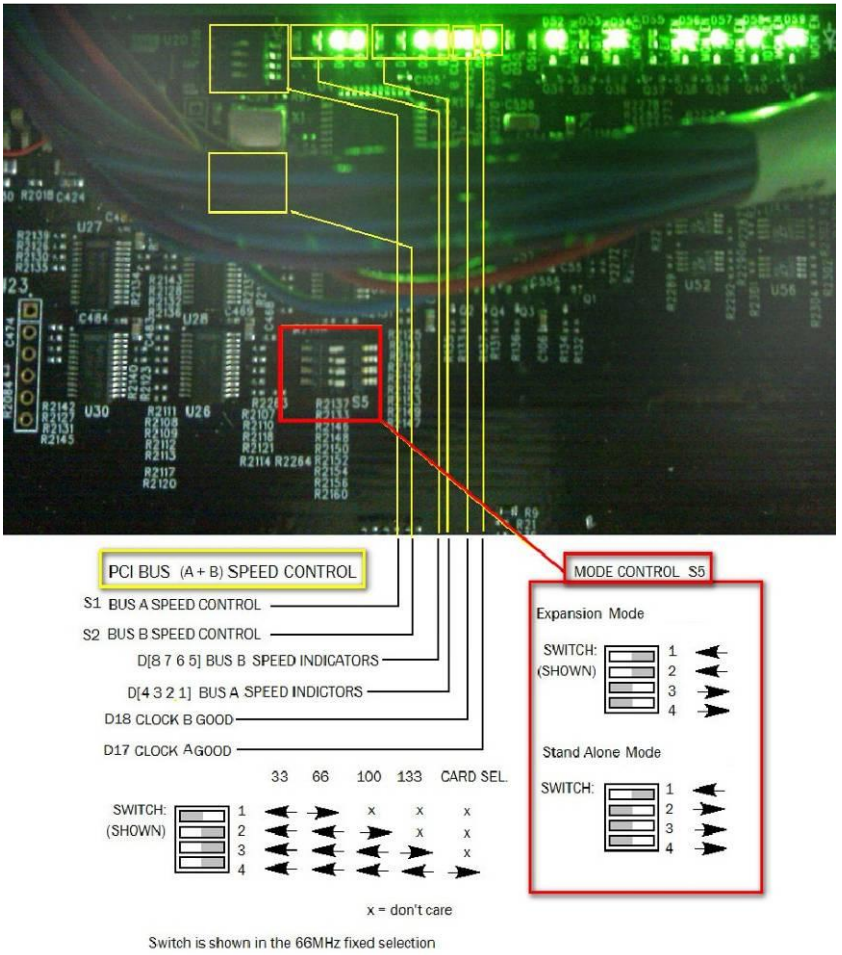


LED and DIP-Switch function information:

The PE16RR-RAS motherboard features a collection of switches, jumpers and status LEDs, some of which are designated for MAGMA internal use for the purpose of diagnosis and calibration. The rest are end-user configurable and will be described below.

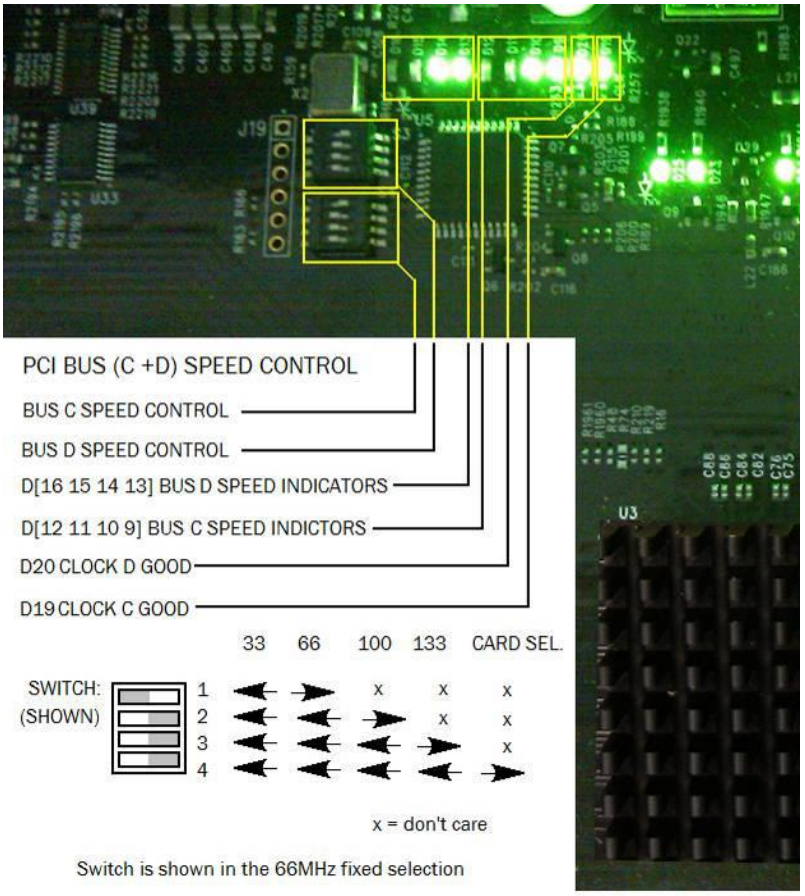
PCI/PCIx Bus Mode and Speed control:

The PE16RR-RAS chassis can be used as a **standalone** or as an **expansion** connected to a host PC depending on the mode set by **S5**, as shown below:


PCI BUS (A + B) SPEED CONTROL
S1 BUS A SPEED CONTROL
S2 BUS B SPEED CONTROL
D[8 7 6 5] BUS B SPEED INDICATORS
D[4 3 2 1] BUS A SPEED INDICTORS
D18 CLOCK B GOOD
D17 CLOCK A GOOD
33 66 100 133 CARD SEL.
SWITCH: (SHOWN)
1 2 3 4
x = don't care
MODE CONTROL S5
Expansion Mode
SWITCH: (SHOWN)
Stand Alone Mode
SWITCH:

Switch is shown in the 66MHz fixed selection

The PCI/PCIx speed control is done using DIP switches S1, S2, S3 and S4 applicable to PCI busses: A, B, C and D respectively.


PCI BUS (C +D) SPEED CONTROL
BUS C SPEED CONTROL
BUS D SPEED CONTROL
D[16 15 14 13] BUS D SPEED INDICATORS
D[12 11 10 9] BUS C SPEED INDICTORS
D20 CLOCK D GOOD
D19 CLOCK C GOOD
33 66 100 133 CARD SEL.
SWITCH: (SHOWN)
1 x x x
2 x x
3 x
4
x = don't care
Switch is shown in the 66MHz fixed selection

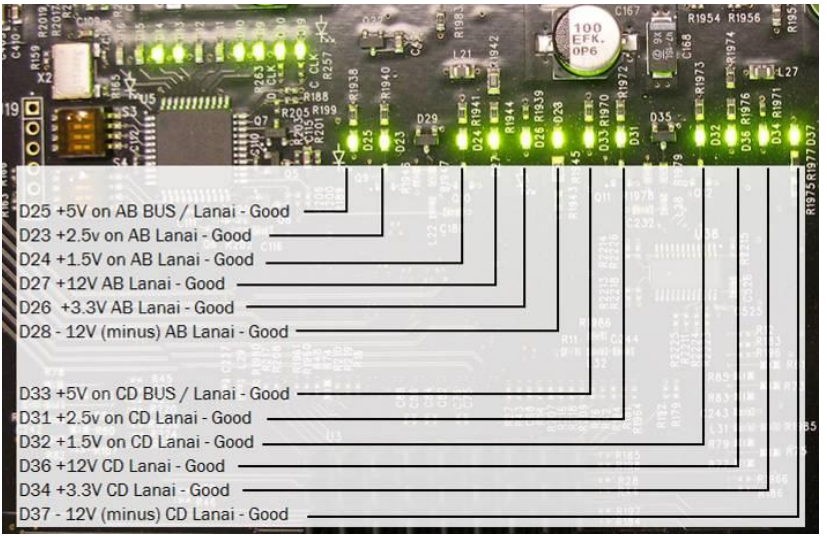
The LEDs light in a binary fashion similar to a stereo volume indicator.
eg: 33MHz – D13 is lit; 66MHz – D14 and D13 are both lit; 100 MHz D15 - D13 are lit.

From a hardware/wiring standpoint, Bus A contains PCI-X slots 1-4, Bus B contains slots 5-8, Bus C contains slots 9-12 and Bus D contains slots 13-16, however note the PCI-X bus enumeration may be different in the Windows Device Manager (or other OS equivalent).

Chassis Status/Diagnostics LEDs:

The LEDs shown below indicate the status of the power delivered to each of the PCI bridge chips, called Lanai:

- Lanai AB being in charge of buses A&B and, respectively, slots1-8.
- Lanai CD being in charge of buses C&D and, respectively, slots 9-16.


D25 +5V on AB BUS / Lanai - Good
D23 +2.5v on AB Lanai - Good
D24 +1.5V on AB Lanai - Good
D27 +12V AB Lanai - Good
D26 +3.3V AB Lanai - Good
D28 - 12V (minus) AB Lanai - Good
D33 +5V on CD BUS / Lanai - Good
D31 +2.5v on CD Lanai - Good
D32 +1.5V on CD Lanai - Good
D36 +12V CD Lanai - Good
D34 +3.3V CD Lanai - Good
D37 - 12V (minus) CD Lanai - Good

For proper operation of the chassis, all the above LEDs must be ON.

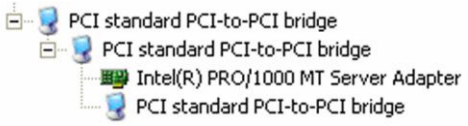
Locate the Problem

The following section only applies when using the chassis is operated in expansion mode.

If you are having trouble with the MAGMA expansion system, verify that all cards are seated properly and all cables are connected properly. Be sure you followed the instructions in earlier sections of this User Guide. Always remember to power **On** and **Off** correctly when rechecking and testing your installation. If you are still having problems, try these simple troubleshooting steps.

- My Computer Can't Find the PCI-X Expansion System
- When Nothing Works
- My PCI-X Card Doesn't Work

The PCIe to PCI Expansion System is correctly displayed as a **"PCI standard PCI-to-PCI bridge"** (Windows Device Manager) and as a **"pci-bridge"** (MAC Apple System Profiler). When connected and functioning correctly, this Expansion System will be displayed as follows:


PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 MT Server Adapter
PCI standard PCI-to-PCI bridge

Windows

Card	Type	Bus	Slot
pci-bridge	pci	PCI	SLOT-2
pci-bridge	pci	PCI	7x4
ATTO ExpressPCI UL3S	scsi-2	PCI	8x4
ATTO ExpressPCI UL3S	scsi-2	PCI	8x4
pci-bridge	pci	PCI	8xc

MAC

If this is not what you see when you verify your installation, the following troubleshooting steps may help you to locate and resolve your installation issues, without having to call Technical Support.

My Computer Can't Find the PCI-X Expansion System

If the expansion system is not visible in your Windows Device Manager or your Apple System Profiler at all, you will need to turn off your computer (first) and then the MAGMA expansion chassis (second) and test all cords and cables to ensure you have everything connected correctly. If everything seems to be connected correctly, and you are sure you have applied power correctly (power up expansion chassis first and then the computer), then try these additional troubleshooting steps:

- Double-check the PCIe host card to ensure it is inserted correctly in its slot.
- Try moving the PCIe host card to a different PCIe slot.
- Check for a bad cable or connection. Try another expansion cable, if you have one.
- If the expansion system is still not visible after trying all of the above steps, go to *Chapter 8* to see about getting additional help.

Windows

If the PCI to PCI Bridge is now visible, but contains a in front of it, it has a problem that must be fixed.

To identify this problem, right-click on the line with the and select "Properties" from the pop-up menu.

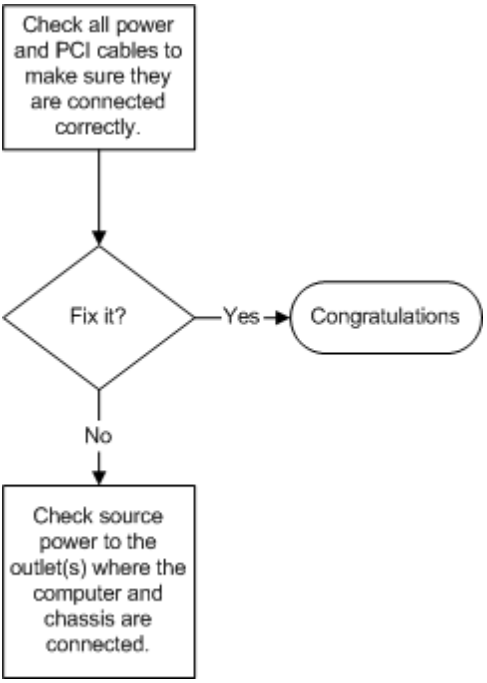
Resolve the identified problem or go to *Chapter 8* to see about getting additional help.

MAC

Go to *Chapter 8* to see about getting additional help.

When Nothing Works

The following troubleshooting steps will help you when the computer or chassis won't turn on or "nothing seems to work" correctly:


Check all power and PCI cables to make sure they are connected correctly.
Fix it?
Yes
Congratulations
No
Check source power to the outlet(s) where the computer and chassis are connected.

Note

Review Chapters *3 (Verify Installation)* and *4 (Install 3rd Party PCI Cards)* as necessary to verify that you have a valid installation of the MAGMA expansion system and that you have correctly installed your 3rd. Party PCI card(s) and their associated drivers (as required).

If it powers up OK, but nothing works, check the computer's Device Manager or System Profiler to see if the expansion system has been found. If not found, try the troubleshooting steps for *My Computer Can't Find the PCI-X Expansion System*. If the expansion system is visible, but has a problem, try to resolve the problem (See Note above). If that fails, go to *Chapter 8* to see about getting additional help.

My Computer Hangs During Power Up

If your computer "hangs" while being turned on and you can't even start, follow these simple steps to try to fix this problem:

1. Shut off the computer (first) and then the MAGMA expansion system and verify that all cards and cables are installed correctly. Reapply power first to the expansion system and then to the computer.

2. If it still hangs, remove all 3rd Party PCI-X cards and try booting up without any cards installed.

    a. If it still hangs, remove the MAGMA PCI-X expansion host card from the computer and try booting up without the MAGMA expansion system attached.

        i. If it boots up OK without the MAGMA expansion system attached, call Magma Technical Support.

        ii. If it still hangs, the problem is in the computer and not with the MAGMA expansion system or the 3rd Party PCI-X cards.

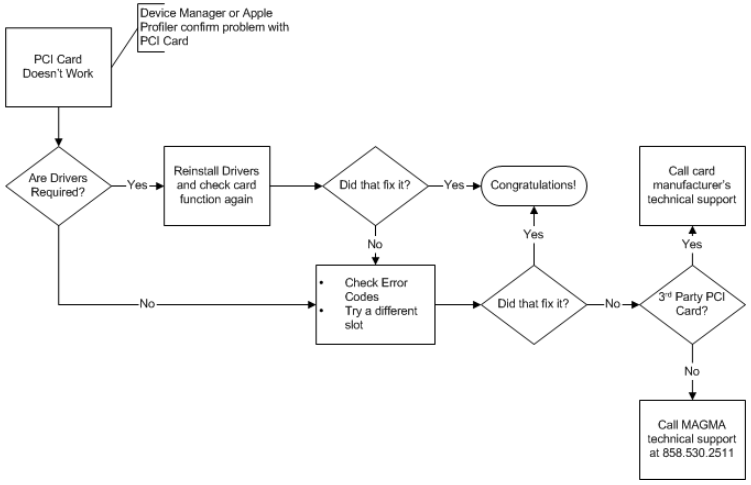
    b. If it boots up OK without any 3rd Party PCI-X cards installed, try adding only one card and see if it boots up.

        i. If it boots up OK with one card in it, shut it down (in the proper order, of course) and swap cards. Repeat this until all cards have been tested. If they all test OK, then add them back one at a time until you find the combination that doesn't work, or you are running fine. If you find a bad card, call Technical Support. If you don't – congratulations, you fixed it!

        ii. If it still hangs up, try a different card – this one is probably bad (or has driver problems). If the second cards works, troubleshoot the first card. If the second card also fails, call Technical Support.

My PCI-X Card Doesn't Work

Follow these simple troubleshooting steps to resolve typical 3rd Party PCI-X card problems:



The following additional steps might also help when the above troubleshooting steps for fail to resolve your problem:

1. Shut down the computer followed by the MAGMA expansion chassis
2. Remove the PCI-X card displaying a problem
3. Replace the "problem card" with a *simple* PCI-X card, such as an Ethernet card that has drivers built into the operating system. *(Using this "type of card" will avoid any future questions about drivers possibly being installed incorrectly.)*
4. Turn on the MAGMA expansion chassis, and then turn on the computer.

Windows

5. Next, open the Device Manager (View by Connection selection).

   If the is gone, the problem is with the 3rd Party PCI-X card or the card drivers. You should go to the *Windows Error Codes* section of this chapter to learn how to troubleshoot using error codes.

   If the is still visible, the problem may be with the MAGMA expansion system. Please contact Magma Technical Support for further guidance and/or a replacement product.

   If an error shows on any of the PCIe to PCI Bridge Connections, call Magma Technical Support immediately.

MAC

5. Next, open the Apple System Profiler and if the PCIe to PCI Bridge Connections and the 3rd Party PCI card(s) are now correctly visible.

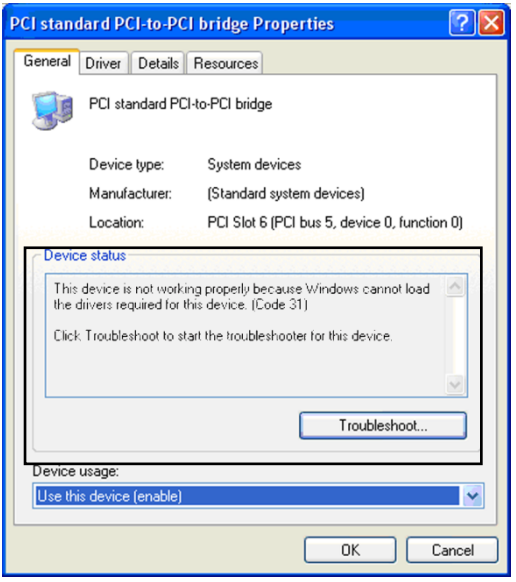
Support for 3rd Party PCI-X Cards

Magma will provide reasonable technical support to with 3rd Party PCI-X cards. However, if you have verified a successful installation of the MAGMA PCI-X Expansion System (as defined in *Chapter 4*), but experience difficulty installing your 3rd Party PCI-X cards, the PCI-X card manufacturer may be able to provide the best support.

The MAGMA PCI-X Expansion System is designed to function exactly like your desktop computer. This means that you should follow the PCI-X card maker's instructions for installation on a Windows or Mac computer as if the expansion chassis WAS the desktop computer. When correctly installed, there is no difference to the operating system, removable cards, or most software.

Windows Error Codes

If you are having a problem with one of your devices, and the Device status box shows a Windows Error Code, refer to the following list of error codes for guidance:



Error Code	Description/Action
10	**This code indicates that there is a problem with the 3rd Party PCI-X Card driver.** If necessary, contact the PCI-X Card's manufacturer for updated PNP compatible drivers. If all else fails, contact Magma Technical Support for further assistance.
12	**On the Bridge:** If you receive error code 12 on the first PCI to PCI Bridge, call Magma Technical Support. **On the PCI-X Card**: This usually means the memory, I/O, or prefetch is more than has been allocated. Call Magma Technical Support.

Error Code	Description/Action
28 (PCI Card)	The driver for the PCI Card is not installed on your system. Reinstall the PCI Card driver following the manufacturer's instructions. If that fails to fix the problem, call the card manufacturer for new drivers.
1	The PCI host card or expansion chassis are not working correctly. Reinstall the PCI host card into the computer's PCI slot and recheck all cable connections. If the error code remains, try another PCI slot. If you still have the error, call Magma Technical Support.
Other Codes	For all other error codes, call: **On the PCI to PCI Bridge:** Magma Technical Support **On the PCI Card:** Card Manufacturer's Technical Support, after first verifying that the MAGMA expansion system is installed properly.

If you are still having problems, contact Magma Technical Support for more help.

Chapter 9 How to Get More Help

Frequently Asked Questions (FAQ)

You can visit the MAGMA Technical Support FAQ pages on the Internet at:

"www.magma.com/support/"

Contacting Technical Support

Our support department can be reached by fax at (858) 530-2733 or by phone at (858) 530-2511. Support is available Monday through Friday, 8:00 AM to 5:00 PM PT. When contacting MAGMA Technical Support, please be sure to include the following information:

1) Name
2) Company Name
3) Phone Number
4) Fax Number
5) Email Address
6) Model Number
7) Serial Number
8) Computer Make
9) Computer Model
10) Operating System and Version
11) Make/Model of PCI-X cards in expansion chassis
12) Detailed description of the problem

You can also visit our web site at:

"www.magma.com/support/"

For a quick response, use the Technical Support and RMA Request Form available in the Support Section of the website. Simply complete the form with all required information. Please make sure that your problem description is sufficiently detailed to help us understand your problem.

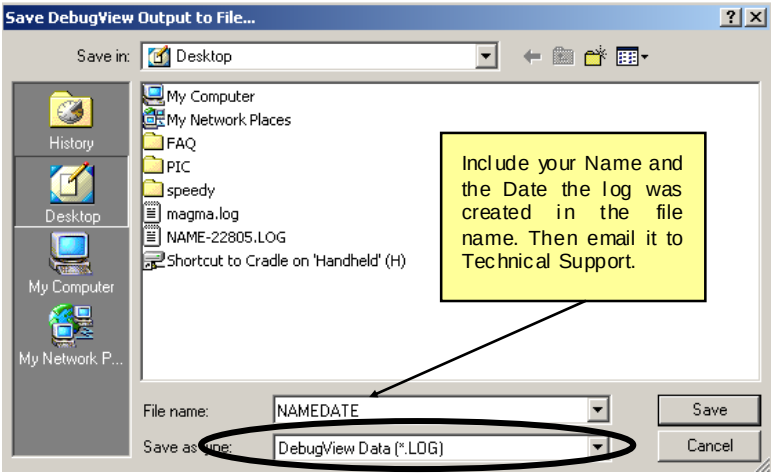
> *For example: Don't say "Won't boot up." Do say "Tried all the steps in the Troubleshooting Section and it still won't boot up."*

For faster diagnosis of your problem, please run the two utility programs described in the following sections and include the diagnostic files they generate with your email.

MAGMA Debug Utility

Occasionally, Magma Technical Support may request Windows users to produce and email a MAGMA debug log file to help them resolve your problem. This file should be emailed to support@magma.com. This file should have a ".log" file extension. To create the *.log file, follow these instructions:

1. Locate a file called **dbgview.exe** on the MAGMA CDROM.
2. Double-click on the file **dbgview.exe**
3. While the **dbgview** screen is open, locate and double-click on a file called **dump.exe** on the MAGMA CDROM.
4. Switch back to the **dbgview** screen, which is now filled with data.
5. Save this file and email to support@magma.com upon request.



Use the "Save as type" drop-down arrow to select a file type of (*.LOG).

PCIScope Software Utility

PCIScope is a powerful tool for Windows users. Designed by APSoft, this utility is a valuable resource to explore, examine and debug the PCI subsystem of your computer. It was made to fit the requirements of the most demanding users, especially engineers, programmers, and system administrators, and to integrate all advanced functions and tools into one product. Please visit „www.tssc.de" for more information about the capabilities of **PCIScope** and other utilities offered by APSoft.

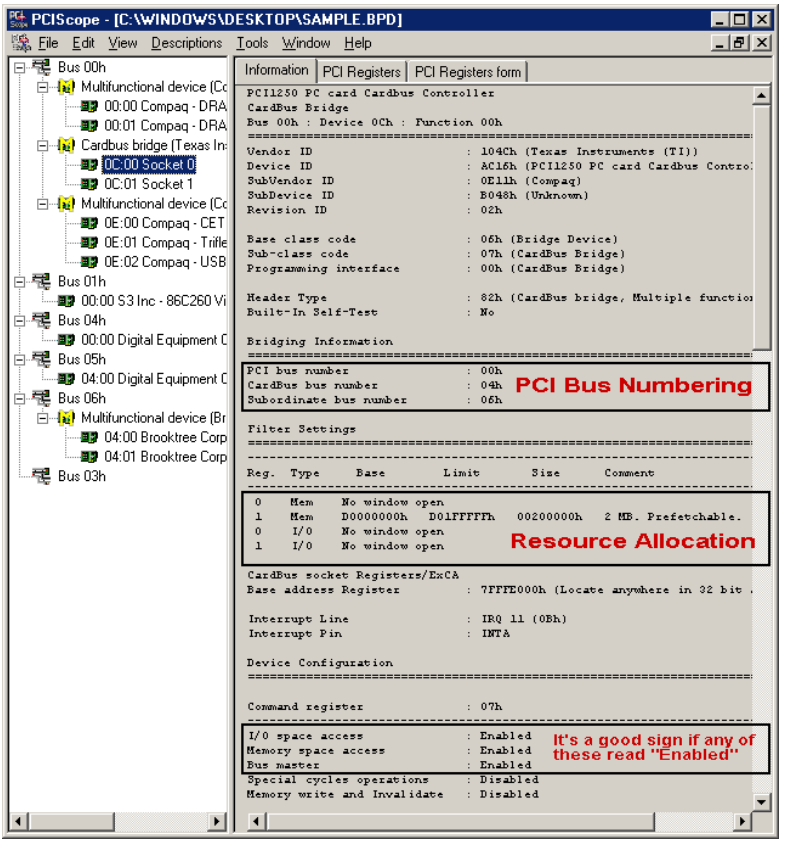
An evaluation version of **PCIScope** is available for download at „www.tssc.de". (You can purchase an inexpensive license from APSoft for use beyond the evaluation period.)

PCIScope has proven to be extremely useful when verifying and debugging configurations involving the MAGMA PCI Expansion Systems under any Windows platform.

PCIScope can provide information to you and our Technical Support Group such as PCI Bus Numbering, Resource Allocation, and other information that may prove useful when debugging expansion chassis or PCI card problems.

If you are experiencing problems setting up your system, you should run **PCIScope** before contacting the Magma Technical Support Group.

With the MAGMA expansion chassis powered up and connected to your computer, load and launch the **PCIScope** application. The **PCIScope** Program will be installed on your computer and a window similar to the one shown below will appear. (The example was taken from a Compaq Armada 7400)


PCIScope - [C:\WINDOWS\DESKTOP\SAMPLE.BPD]
File Edit View Descriptions Tools Window Help
Information
PCI Registers
PCI Registers form
Bus 00h
Multifunctional device (Cc
00:00 Compaq - DRA
00:01 Compaq - DRA
Cardbus bridge (Texas In:
0C:00 Socket 0
0C:01 Socket 1
Multifunctional device (Cc
0E:00 Compaq - CET
0E:01 Compaq - Trifle
0E:02 Compaq - USB
Bus 01h
00:00 S3 Inc - 86C260 Vi
Bus 04h
00:00 Digital Equipment C
Bus 05h
04:00 Digital Equipment C
Bus 06h
Multifunctional device (Br
04:00 Brooktree Corp
04:01 Brooktree Corp
Bus 03h
PCI1250 PC card Cardbus Controller
CardBus Bridge
Bus 00h : Device 0Ch : Function 00h
Vendor ID : 104Ch (Texas Instruments (TI))
Device ID : AC15h (PCI1250 PC card Cardbus Contro
SubVendor ID : 0E11h (Compaq)
SubDevice ID : B048h (Unknown)
Revision ID : 02h
Base class code : 06h (Bridge Device)
Sub-class code : 07h (CardBus Bridge)
Programming interface : 00h (CardBus Bridge)
Header Type : 82h (CardBus bridge, Multiple functio
Built-In Self-Test : No
Bridging Information
PCI bus number : 00h
CardBus bus number : 04h
Subordinate bus number : 05h
PCI Bus Numbering
Filter Settings
Reg. Type Base Limit Size Comment
0 Mem No window open
1 Mem D0000000h D01FFFFFh 00200000h 2 MB. Prefetchable.
0 I/O No window open
1 I/O No window open
Resource Allocation
CardBus socket Registers/ExCA
Base address Register : 7FFFE000h (Locate anywhere in 32 bit
Interrupt Line : IRQ 11 (0Bh)
Interrupt Pin : INTA
Device Configuration
Command register : 07h
I/O space access : Enabled
Memory space access : Enabled
Bus master : Enabled
Special cycles operations : Disabled
Memory write and Invalidate : Disabled
It's a good sign if any of these read "Enabled"

You should save this data as a file on your computer. Please include your name and date as part of the file name with an extension of ".bpd." Then email this file to "support@magma.com" if you are experiencing configuration problems.

Returning Merchandise to MAGMA

If factory service is required, a Service Representative will give you a Return Merchandise Authorization (RMA) number. Put this number and your return address on the shipping label when you return the item(s) for service. **MAGMA will return any product that is not accompanied by an RMA number**. Please note that MAGMA WILL NOT accept COD packages, so be sure to return the product freight and duties-paid.

Ship the well-packaged product to the address below:

MAGMA RETURNS DEPT.
RMA # _____
9918 Via Pasar
San Diego, CA 92126
USA

It is not required, though highly recommended, that you keep the packaging from the original shipment of your MAGMA product. However, if you return a product to MAGMA for warranty repair/ replacement or take advantage of the 30-day money back guarantee, you will need to package the product in a manner similar to the manner in which it was received from our plant. MAGMA cannot be responsible for any physical damage to the product or component pieces of the product (such as the host or expansion interfaces for PCI-X expansion chassis) that are damaged due to inadequate packing. Physical damage sustained in such a situation will be repaired at the owner's expense in accordance with Out of Warranty Procedures. Please, protect your investment, a bit more padding in a good box will go a long way to insuring the device is returned to use in the same condition you shipped it in. Please call for an RMA number first.

APPENDIX A Compliance

FCC

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interferences or to be noncompliant with the appropriate standards for its intended use.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numériqué de la classe A est conformé à la norme NMB-003 du Canada

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives. Magma will not retest or recertify systems or components that have been reconfigured by customers

Magma

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www.magma.com

Manual P/N 09-09978-02-A